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ABSTRACT

In fiscal years 1963-1985, the World Bank had experience with 32 investments in distance education projects in developing nations, including Malaysia, the Ivory Coast, Thailand, the Philippines, Malawi, and China. (Distance education is an educational delivery system that uses a variety of media and a system of feedback to provide education to people who are unable to attend traditional schools.) Lessons learned indicate that investments in distance education are most effective when there is agreement between the bank and the borrower on the educational objectives of the distance education component. It was also learned that distance education has been used to advantage when: (1) it is sharply focused on improving the quality of teaching available; (2) it is used to teach nonformal "equivalency" education to students otherwise without teachers and classrooms; and (3) it is used to meet special needs and answer urgent needs for the formation of human capital. The text is supplemented by nine tables, and an appendix provides a list of key performance indicators. (8 references) (Author/EW)

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Discussion Paper

EDUCATION AND TRAINING SERIES

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Report No. EDT68

General Operational Review of Distance Education

David Hawkridge

March 1987

Education and Training Department

Operations Policy Staff

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Discussion Paper

Education and Training Series

Report No. EDT68

GENERAL OPERATIONAL REVIEW OF DISTANCE EDUCATION

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Education and Training Department

March 1987

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ABSTRACT

This study reviews Bank experience in FY63-FY85 with 32 investments in distance education projects. Distance education is an educational delivery system that uses a variety of media and a system of feedback to provide education to people who are unable to attend traditional schools. Lessons learned indicate that investments in distance eduction are most effective when there is agreement between the Bank and the Borrower on the educational objectives of the distance education component. Distance education has been used to advantage when (a) it is sharply focussed on improving the quality of teaching available; (b) it is used to teach nonformal "equivalency" education to students otherwise without teachers or classrooms; and (c) it is used to meet social demands and answer urgent needs for formation of human capital.

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SUMMARY

At the Bank, distance education is usually taken to refer to education via broadcasting (television and/or radio) and by correspondence. Distance education projects may include teaching in classrooms and out, in the presence of teachers, qualified or not, or without them. In classrooms, it is often an add-on, complementing face-to-face teaching, but it may replace teachers. Outside classrooms, distance education replaces teachers for all or almost all of the time.

The Bank's first distance education project was in the Ivory Coast in 1970, with fairly disastrous results. Since then, projects have included distance education as a relatively minor component, with the important exception of China III (for the Chinese television universities). The peak period was 1974-78, when about 19% of education projects included this component. Overall, only 32 projects out of 302 (10.6%) have incorporated distance education. Radio is the medium used most frequently. Television belongs entirely to the early projects, again with the notable exception of China III. The most common types have been non-formal adult education by radio and primary school radio broadcasts. Of the Bank's regions, E. Asia, E. Africa and W. Africa have used distance education most, accounting for 24 of the 32 projects.

In Type A projects, distance teaching was added on as an enrichment to existing face-to-face teaching, and its use by teachers is largely voluntary. In Type B projects, teachers were deliberately replaced by distance education for some of the week, to improve the quality of mainline instruction offered in mathematics and/or language. In Type C projects, of which there were many, distance education was the only, or almost the only, teaching because qualified teachers and classrooms were not available. Teaching was focussed in non-formal adult education, in fields such as health and agriculture, or on in-service teacher training. None involved teaching children. In Type D projects, distance education was the only teaching mode, because sufficient qualified secondary or university-level teachers were not available, though classrooms were built or found.

Many developing countries have implemented Type C or D distance education projects in recent years without Bank assistance.

Cost-effectiveness of distance education projects, whether Bank-funded or not, is difficult to determine in terms of cash spent and gains in learning, yet projects of Types C and D offer large numbers of students educational opportunities not otherwise available because of shortages of qualified teachers and/or classrooms.

Educational objectives should be clarified before the Bank invests in infrastructure (such as studios) for distance education. Type B projects will not be cost-effective unless they are sharply focussed on quality improvement, as in the Thailand radio mathematics project.

'Teacher replacement' projects (Types C and D) can be particularly efficient ways of expanding capacity to meet social demand, as in China, and for answering urgent needs for formation of human capital. To be successful, such projects must be managed well, with proper attention being paid, where appropriate, to accreditation, quality of teaching materials and broadcasts, delivery systems and student support services.

INTRODUCTION

What is distance education? Perraton (1982) defines it as 'an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner'. At the Bank, it seems that the term is usually taken to refer to education via broadcasting (television and/or radio) and by correspondence. Textbooks, audio- and video-cassettes, science kits and other items of learning materials all provide teaching prepared by someone removed in space and time from the learner, but in the Bank they are not regarded as offering distance education unless they are integrated with broadcast or correspondence courses. So Paraguay IV, which upgrades rural primary school teachers through printed materials, does not get listed as a distance education project.

Distance education is a slippery concept, however. The label is attached to instruction in classrooms and out, in the presence of teachers (qualified or not), or without them. In classrooms, it often complements face-to-face teaching: it may simply enrich in a general way what teachers provide, as in Malaysia, or it may take over from teachers for an hour or two each day, teaching content beyond their capabilities, as in Thailand. Outside classrooms, distance education may replace teachers for all or almost all of the time, as in Lesotho. And just to confuse the issue further, there are examples of distance education in classrooms but more or less without teachers, as in China.

Distance education methods are used for formal courses at all levels, whether leading to qualifications ('equivalency') or not, and for non-formal education of many kinds.

Is such a slippery concept worth a general operational review? Is it simply a vaguely useful component that may be considered as an add-on to certain Bank education projects when somebody enthusiastic pushes for it? What does the Bank's experience tell us?

THE BANK'S EXPERIENCE WITH DISTANCE EDUCATION

Anyone who was in the Bank working on education projects in the 1970s will recall the apparently disastrous Ivory Coast educational television experiment (see Hawkridge and Robinson, 1982, for a summary). Although evaluation studies showed some positive outcomes, the project has 'sunk without trace' and educators say that never was so much wasted, including Bank funds, on such poor television broadcasts with so little effect. This project coloured attitudes towards distance education throughout the international aid and lending community, and it was the Bank's first to include distance education.

Since then, with rare exceptions such as China III, projects have incorporated distance education only as a minor component, sometimes extremely minor. (The Bank identifies particular parts of projects for funding, and calls them components.) Overall, 32 education projects show clear evidence of distance education components (Table 1). The peak period for distance education was 1974-78, when it was included in only 19% of Bank education projects (Table 2). In a period when developed and developing countries alike were actually using MORE distance education, the percentage has dropped since 1979 to slightly under 8%.

TABLE 1

Bank Education Projects Incorporating Distance Education, FY63-85

By Financial Year

FY	Projects
1970	Ivory Coast I
1971	Jamaica II, Turkey I
1972	Iraq I, Malaysia II
1973	Philippines II
1974	Mauritania I, Lesotho I, Malaysia III
1975	Ethiopia IV
1976	Ghana, Kenya III, Indonesia IV, Thailand IV
1977	Pakistan III, Philippines IV, Bolivia I, Colombia
1978	Somalia III, Haiti II, Philippines V, Mali II, Lesotho II
1979	Malawi III, Thailand V
1983	Malawi V
1984	China III, China IV, Mali III
1985	Ethiopia VI, Togo II, Pakistan VI

TABLE 2

Bank Education Projects Incorporating Distance Education, FY63-85

By Period

Period	All Projects	Projects with Distance Education	
		Number	Percentage
Before 1974	87	6	8
1974-78	85	17	19
1979-85	130	9	7
Total	302	32	10.6

It is easy enough to categorise the 32 distance education projects by medium of instruction (Table 3). Radio is apparently the medium used most frequently, although the figure for print is probably too low, simply because reports do not always bother to mention print in a minor form, such as posters or pamphlets. Television belongs entirely to the early projects, again with the notable exception of China III. Mention of a medium does NOT necessarily imply, however, that the Bank was lending money for that medium, which may even have existed and been in use for education before the Bank intervened.

Table 3 shows 15 radio only projects, 9 with radio and print only, 4 with television only, 2 with television and print only, 1 with television and radio only, 2 with print only, and only 1, China again, using all three media.

TABLE 3

Bank Education Projects Incorporating Distance Education, FY63-85

By Medium of Instruction

Project	Television	Radio	Print
Ivory Coast I	Yes		Yes
Jamaica II	Yes		
Turkey I	Yes		
Iraq I	Yes		
Malaysia II	Yes		
Philippines II		Yes	
Mauritania I		Yes	
Lesotho I		Yes	Yes
Malaysia III	Yes	Yes	
Ethiopia IV		Yes	
Ghana		Yes	
Kenya III		Yes	
Indonesia IV		Yes	
Thailand IV		Yes	Yes
Pakistan III	Yes		Yes
Philippines IV		Yes	
Bolivia I		Yes	Yes
Colombia		Yes	
Somalia III		Yes	
Haiti II		Yes	
Philippines V		Yes	
Mali II		Yes	
Lesotho II		Yes	Yes
Malawi III		Yes	Yes
Thailand V		Yes	Yes
Malawi V		Yes	Yes
China III	Yes	Yes	Yes
China IV		Yes	
Mali III		Yes	
Ethiopia VI		Yes	Yes
Togo II			Yes
Pakistan VI			Yes
TOTAL	8	24	13

Next, we can categorise the projects by educational level (Table 4), noting that a single project may serve several levels, possibly through different Bank-identified components. It is not usual, however, for all components in a project to be served through distance education. Non-formal adult education tops the list in Table 4, followed by primary schooling. Universities come bottom, despite the fact that many developing countries now have universities-at-a-distance (see Kaye and Rumble, 1981, and Table 8 below).

Table 4 also shows that some regions have incorporated distance education into projects more than others. But Table 5 clarifies the picture, by showing that some regions have used distance education in only a very small percentage of their education projects to date.

TABLE 4

Bank Education Projects Incorporating Distance Education, FY63-85

By Region and Level of Instruction

Region	Primary	Secondary	Teacher Training	Non-formal Adult Ed.	Univ-ersity	No. of Projects
E. Africa	7	4	2	2	-	8
W. Africa	1	-	1	5	-	6
E. Asia	4	3	2	6	2	10
S. Asia	-	-	1	1	-	2
LAC	2	-	-	2	-	4
EMENA	2	-	-	1	-	2
TOTAL	16	7	6	17	2	32

TABLE 5

Bank Education Projects Incorporating Distance Education, FY63-85

By Region

Region	All Projects	Projects Incorporating Distance Education	
		Number	Percentage
E. Africa	60	8	13
W. Africa	44	6	14
E. Asia	55	10	18
S. Asia	23	2	9
LAC	59	4	9
EMENA	61	2	3
TOTAL	302	32	10.6

If we look at a breakdown by level and by instructional setting (Table 6), not surprisingly primary and secondary settings are usually in classrooms with teachers. Adults generally do without classrooms and teachers, whether they are receiving teacher training, non-formal education, or even university courses.

Table 7 categorises the Bank's distance education projects by the extent to which teachers were replaced. Where a single project has several components (e.g., Phillipines V has primary and teacher training components), these are categorised separately.

TABLE 6

Bank Education Projects Incorporating Distance Education, FY63-85

By Level and Instructional Setting

Level	In Class	With Teachers
Primary	All 16 projects	All 16 projects
Secondary	6 out of 7	4 out of 7
Teacher Training	0 out of 6	0 out of 6
Non-formal Adult	1 out of 17	1 out of 17
University	1 out of 2	0 out of 2

TABLE 7

Bank Education Projects Incorporating Distance Education, FY63-85

By Extent of Teacher Replacement

Type	Extent of Teacher Replacement	Projects
A	Distance education added on, as an enrichment, to existing face-to-face teaching and use is voluntary	Jamaica II (P), Turkey I (P), Iraq I (P), Lesotho I (P), Malaysia II & III (P&S), Ethiopia IV (P&S), Kenya III (P&S), Bolivia I (P), Lesotho II (P)
B	Teachers deliberately replaced by distance education for some of the week, to improve quality of main instruction offered in mathematics and/or language	Ivory Coast I (P), Phillipines V (P) Thailand V (P)
C	Distance education is only or almost only teaching provision as qualified teachers and classrooms are not available	Ivory Coast I (NFA), Turkey I (NFA), Philippines II & IV (NFA), Mauritania I (NFA), Ghana (NFA), Indonesia IV (NFA), Thailand IV (NFA), Pakistan III (NFA), Colombia (NFA), Somalia III (NFA), Haiti II (NFA), Philippines V (TT), Mali II (NFA), Malawi III & V (P,TT), Thailand V (TT,NFA), China IV (NFA), Mali III (NFA), Ethiopia VI (NFA), Togo II (TT), Pakistan VI (TT)
D	Distance education is only teaching offered as qualified teachers are not available though there are classrooms	Malawi III & V (S), Thailand V (U), China III (S,U)

P = Primary S = Secondary TT = Teacher training U = University
NFA = Non-formal adult education

As Table 7 shows, in the Type A projects, distance teaching was added on as an enrichment to existing face-to-face teaching, and its use by teachers is largely voluntary, although they were urged to introduce the broadcasts and print materials into their lessons. The projects were all in primary or secondary school settings, and the subjects taught ranged across the curriculum with emphasis on language, mathematics, science and social science.

In the few Type B projects, teachers were deliberately replaced by distance education for some of the week, to improve the quality of mainline instruction offered in mathematics and/or language. These subjects were chosen because they are basic to the entire curriculum and because most teachers were not qualified to teach them.

In the Type C projects, of which there were many, distance education was the only, or almost the only, teaching because qualified teachers and classrooms were not available. All the distance teaching was focussed in non-formal adult education, usually in fields such as health and agriculture, or on in-service teacher training. None involved teaching children.

In the few Type D projects, distance education was the only teaching mode, because sufficient qualified secondary or university-level teachers were not available, though classrooms were built or found.

CASE STUDIES OF BANK PROJECTS WITH DISTANCE EDUCATION

Table 8 summarises characteristics of Bank projects in 6 countries. The case studies that follow exemplify each of the four types.

TABLE 8

Selected Bank Education Projects Incorporating Distance Education

Case Study	Type	Effects measured	Cost-effectiveness
Malaysia II & III (primary and secondary)	A	Low usage of TV; learning gains not evaluated	Add-on costs considerable and no evidence of cost-effectiveness
Ivory Coast I (primary)	B	Some gains in French language and math	Perceived as grossly uncost-effective
Thailand V (primary)	B	Improved mathematics test scores	No verdict on cost-effectiveness yet
Philippines V (teacher training)	C	Children improved language test scores	Cost-effectiveness unproven
Malawi III and V (secondary)	D	Large numbers of passes in tests	Cost-effectiveness demonstrated
China III (university)	D	Very large numbers of graduates	Prima facie, very cost-effective

Malaysia II & III

In this Type A project, Malaysia wished to enrich science and mathematics teaching in rural primary and secondary schools. Malaysia II provided a television studio and 5,500 receivers (2,500 with generators). By 1981 29 different lesson series were being broadcast during the school year, 37 hours a week, day-time only. The role of television was supplementary, with an add-on cost, and the Government was unable to oblige or persuade all teachers to incorporate the broadcasts into their teaching. Of schools with a receiver, 62% (primary) and 42% (secondary) switched on at all, and 45% and 27% on average viewed a series, with only 40% and 25% on average viewing a particular broadcast, despite some in-service teacher training in using educational television.

Malaysia III extended educational television to the eastern provinces of Sabah and Sarawak by building and equipping another studio and providing 2,200 receivers (with 1,700 generators). It also extended educational radio into the same area by building and equipping two studioes in Sabah, and supplying 900 receivers. Figures for the use of broadcasts were reported as 74% (primary) and 51% (secondary) in 1981 but dropped to 47% and 22% by 1983. The main factor was said to be deterioration of equipment. Visits to Sabah schools revealed that usage in 1983 was actually much lower, reflecting a poor return for a substantial add-on cost. In Sarawak, a team of competent technicians encouraged use, and figures were 60% and 33%. No data are available on learning effects of Malaysia II and III; add-on costs were considerable.

Ivory Coast I

The Bank became involved in this Type B project in 1970, just before television teaching began in the Ivory Coast. Other international agencies were drawn in, too, and the project depended on a large and very expensive expatriate staff (188 in 1975), mainly French. It was aimed at aiding educational reform and upgrading the quality of teaching, borrowing ideas from the El Salvador, Niger and American Samoa experiments. Classes in primary schools were to be taught substantially through television, and over 15,000 were being reached in 1980. Non-formal adult education broadcasts were planned as well.

The project failed for complex reasons (see Hawkridge and Robinson, 1982). A large evaluation study yielded results that have been variously interpreted. Students from television schools seemed to have improved their spoken, but not written, French, and in some grades the results for mathematics similarly favoured them compared with other students in other schools. The broadcasts were much criticised, although they appear to have reduced some inequities between rural and urban schools.

What is absolutely clear, however, is that the country could not sustain the immense add-on cost of educational television, as it had been provided, despite some evidence of benefit. The project was not perceived to be cost-effective by the funding agencies or the borrower, and was abandoned.

Thailand V

This project started in 1979. It includes considerable use of educational radio, which had been used in Thailand for some 25 years previously. The largest radio-supported component (Type B) is in-school and an extensive range of 'teacher replacement' lessons in mathematics and Thai language has been developed (Type B). These are a pedagogical model for unqualified teachers, thereby presumably performing an in-service training function (Type C) as well as teaching the children. Three other components entail Type C radio out-of-school: a) for adult equivalency courses, b) for open university courses, and c) for non-formal adult education for development. For a) and b), the plan was to produce radio courses reinforced by direct mailing of print materials and by discussion in self-help groups without tutors.

The radio lessons for schools are based on lessons prepared for Radio Mathematics (Nicaragua), and Galda (1985) reported that Thai schools using the broadcasts did consistently better in mathematics than controls that did not. This difference was greater in the rural north-east than around Bangkok, showing that the project was reducing regional inequities. Teachers were also positive about the broadcasts and their effects. Although there was a small add-on cost, the return was judged to be worthwhile. No verdict was delivered on cost-effectiveness.

The costs and effects of the Type C components have not been evaluated yet.

Philippines V

The project began in 1978, with the objectives of developing and evaluating the cost-effectiveness of using educational radio for in-service teacher training (Type C), and as a direct medium for classroom teaching in primary schools (Type B). Transmission problems led to the 80 30-minute teacher training broadcasts being sent out on cassette to some areas, but over 17,000 teachers took the course. In the classroom, radio was perceived as important support, with 140 radio lessons and worksheets for each of Grades 4-6. Just over 2,000 classes were involved.

A limited and indirect evaluation of the Type C teacher training component, based on pre- and post-tests of classes' knowledge of Filipino, only one of the five subjects taught, showed that teacher training by radio was more effective in raising children's scores than any other combination. Textbooks plus teacher training by radio provided greatest cost-effectiveness, mainly because the average add-on costs of radio lessons were comparatively high, with development costs for the broadcasts being spread over only the project teachers. As marginal costs were low, costs of expansion into a national system could have been reasonable. Without further evaluation, however, the project's cost-effectiveness remains unproven.

Malawi III and V

The Malawi Correspondene College (MCC) started in 1965 and in 1979, when the Bank became interested, was broadcasting about 15 hours of lessons a week through the Malawi Broadcasting Corporation in support of its correspondence courses for primary and secondary qualifications, and for teacher education (Type C). Students taking MCC primary and teacher

education courses were studying independently, but 2,880 taking secondary school equivalency courses were studying in makeshift primary school buildings with very little equipment, under supervision by primary school teachers many of whom lacked secondary schooling and were not qualified to teach at secondary level (Type D).

Among Malawi III's objectives was an increase in the pass rate (21% in 1979) for these secondary students, through improving the buildings of 30 selected study centres, in which they studied for up to 6 hours a day, and by upgrading the headquarters building where print materials were prepared and printed. The refurbished centres alone would serve 2,720 students, the studio and control room would be upgraded and re-equipped, and new printing equipment installed. The project did not include similar objectives for students taking the primary and teacher education courses.

Derkx (1982) reported that the MCC had 13,800 active students in 1982, with some 90 centres operating. The 29% pass rate for 1981 was 'acceptable for correspondence study' and the 1981/82 cost per student was well below that for conventional secondary schools. Thus in Malawi a Type D project produced cost-effective results.

China

By far the largest and most important of these distance education case studies is China III, the Chinese television universities (TVUs) project (Type D). The TVUs began operating in a national system in 1979 and by 1985 had enrolled about 1,000,000 students, most of them taking a college degree. The system is complex. The Central Radio and Television University (CRTVU) in Beijing only makes teaching materials (TV and radio broadcasts, study guides and textbooks), and enrols no students. Of the 28 provincial television universities (PTVUs), some produce materials, but all enrol students through local TV classes, normally established under the auspices of and located in premises of factories, local government bureaus, commercial enterprises, etc. Most students are 21-35 years old and are high school graduates who have passed a competitive entry examination. Most are released on basic pay to study full-time, 6 hours a day, 6 days a week, taking at least 3 years to graduate. About 20% are unassigned (unemployed) youth, who, unlike the rest, are not guaranteed a job when they graduate or stop studying; their fees have to be paid by their families, not employers.

China III is helping the TVUs to expand to at least 1.3 million registered students by 1990 through providing printing presses and television production equipment for the CRTVU, production and transmission equipment for 9 major PTVUs and video production equipment for 19 minor PTVUs. It is also supplying computers, scientific apparatus and technical assistance of many kinds to all the TVUs. The curriculum is heavily oriented towards science and technology.

China III started only two years ago and educational effects of the Bank's input certainly cannot yet be seen. Claims of cost-effectiveness therefore rest so far on the record of the TVU system as a whole. Costs per student or per graduate are not yet available, although they are known to be substantially lower than those of conventional Chinese higher education institutions. The Bank's $65 million investment should achieve very significant economies of scale in this equivalency project, with as many as 2 million students to be registered for courses by about

1995. Already the system produces well over 100,000 graduates a year, on average, by providing teaching through television and text to classrooms where very few qualified teachers exist.

COST-EFFECTIVENESS OF THE BANK'S DISTANCE EDUCATION PROJECTS

Cost-effectiveness should be a principal factor in determining Bank investment policy. Regrettably, comprehensive evaluation studies do not exist for any of the Bank's 32 distance education projects, therefore it is difficult to draw firm conclusions about the cost-effectiveness of each, relative to the others or relative to projects not containing distance education, in terms of cash spent and learning gains.

Generally speaking, the picture on costs is clear enough. Broadcast lessons in classrooms, with teachers present, cost something extra, whether they are for enrichment (Type A) or to take over instruction temporarily from poorly qualified teachers (Type B). The extra costs per student are not high when only radio is involved, but rise if printed materials must be developed and distributed as well. When television is introduced the cost per student may rise even further, depending on the professional quality of broadcasts.

In Type A projects it is rare for students' achievement data to show that these lessons have had any discernible effect. Effects of broadcasts often cannot be isolated from the effects of other educational influences (see Eicher and others, 1982, for extensive discussion of this problem). Type B projects receive more careful evaluation, and some evidence of learning gains has been found in each project.

Radio broadcasts direct to adults for non-formal education (Type C) are also an add-on cost, but they often do something that is very difficult to do any other way: they reach cheaply large numbers of people, usually scattered over a wide area. Their effects are costly to measure (Jamison and McAnany, 1978) therefore their cost-effectiveness is not proven. Type C projects for in-service techer training have not yet been shown to be cost-effective, although they have had some effects.

Where the Bank's projects (and others) may be able to show cost-effective use of distance education is in reaching and teaching students, in classrooms, without teachers, for equivalency examinations (Type D). Perraton's (1982) volume of studies underlines this point, which is confirmed by more recent evidence from China III. Students are prepared for identical or similar tests of achievement as are taken by students attending conventional institutions in those countries. Even without comprehensive evaluation studies, there is prima facie evidence that they operate at a lower cost per student, and probably at lower cost per 'graduate', and they successfully teach students who would be unlikely to obtain equivalent education through other institutions.

NON-BANK DISTANCE EDUCATION SYSTEMS IN LDCs

From the literature (e.g., Kaye and Rumble, 1981, Raggatt and Harry, 1985) it is clear that many LDCs have been establishing viable distance education systems for teaching equivalent courses, without teachers or classrooms (Type C). Table 9 lists examples that have not

had the support of the Bank, for whatever reason. Some were quite ephemeral projects, most are now large and firmly established national or regional institutions. From this list it is clear that many governments perceive distance education as worth exploiting, particularly at secondary and post-secondary levels, though in most cases comprehensive evaluation studies are not available. Each year, at least one developing country is setting up a new permanent distance education system, thus expanding educational provision and opportunity.

TABLE 9

Other Distance Education Systems in LDCs

Country	Name of System	Level	Type
Brazil	Educational Television Foundation	P	D
Costa Rica	Universidad Estatal a Distancia	U	C
India	Nat'l Council of Educ. Res. & Trg	TT	C
	Open University (being established)	U	C
Indonesia	Centre of Techn. and Communication*	TT	C
Kenya	Correspondence Course Unit	TT	C
Korea, Rep. of	Air-Correspondence High School	S	C
	Air-Correspondence Junior College	U	C
	Open University	U	C
Mauritius	College of the Air	S	B
Mexico	Radioprimaria	P	A
	Telesecundaria	S	B
Nigeria	Nigeria Teachers' Institute	TT	C
	University of Lagos Correspondence Inst.	U	C
Pakistan	Allama Iqbal Open University	NFA/TT/U	C
Peru	Universidad Abierta a Distancia	U	C
Philippines	University-on-the-Air	U	C
Sri Lanka	Sri Lankan Open University	TT/U	C
Swaziland	Teacher Training Programme	TT	C
Venezuela	Universidad Nacional Abierta	U	C
Zimbabwe	In-Service Teacher Education (ZINTEC)	TT	C

*Is likely to receive Bank support.

Are borrower countries slow to ask the Bank for help in setting up distance education, or is the Bank slow to suggest using distance education, or is it a bit of both? From the Bank's experience to date, it might be reasonable to expect that the Bank would be interested in funding more Type C and D 'teacher replacement' projects.

The Bank's early record, say some staff, shows that up to about 1975 it concerned itself more with strengthening the physical infrastructure of education systems (e.g. by paying for buildings and equipment). It has been suggested that the Bank's focus on capital investment in buildings may even have led it to overlook benefits to be gained from investment in distance education systems that depend little on buildings.

Table 8 shows that a number of the Bank's clients perceived the lack of distance education an urgent problem in post-secondary education. They did not underestimate the numbers of well-motivated students available to allow their new distance education systems to

achieve significant economies of scale. Is it that governments do not find it necessary to seek loans for distance education? Or do the Bank's procedures in setting up projects favour production of conventional textbooks rather than distance education broadcasts and texts, perhaps because indicators of success are more easily established and measured (see Appendix 1 for some key indicators of performance in distance education)? Is the Bank missing important opportunities for investing in national development through distance education?

LESSONS FROM THE BANK'S EXPERIENCE

What overall lessons are to be learned from the Bank's experience to date, and should the Bank be advocating distance education?

As in other fields, investment in infrastructure (e.g., television studios) without clear agreement on educational objectives is wasteful. Achievement of these objectives must be supervised, and proper supervision requires prior agreement on objectives.

Where the educational objectives involve adding on distance education to conventional systems, the cost-effectiveness of this approach is questionable, particularly in Type A projects. If distance education is sharply focussed on improving the quality of teaching available, as in the Thailand radio mathematics project (Type B), the investment is more likely to be cost-effective. Perhaps the Bank should go so far as to say that resources for broadcast lessons to students in classrooms should be provided by the Bank only when it can be shown that most teachers available cannot do the teaching required.

Similarly, resources for radio broadcasts for non-formal adult education be provided by the Bank only when it can be shown that large numbers will be reached, usually over a wide geographical area? But formal education Type C projects may well be worth funding if they teach students for equivalent examinations without teachers or classrooms.

Finally, this GOR indicates that projects that provide distance education instead of teachers can be efficient ways of expanding capacity to meet social demand or for answering urgent needs for formation of human capital, as in China. To be sure, such projects will be successful only if managed well, with proper attention being paid, where appropriate, to matters such as accreditation, quality of teaching materials and broadcasts, delivery systems (including transmission networks and mail) and student support services, whether for tutoring or counselling. Resources for distance education should be concentrated in those projects (Types C and D) where it is likely to be a cost-effective means of teaching for 'equivalency'.

These are lessons that can be drawn from this brief review. Doubtless there are others. The evidence is strong enough to suggest that distance education should feature more prominently in Bank projects in the 1990s than it has so far in the 1980s.

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Appendix

KEY PERFORMANCE INDICATORS FOR DISTANCE EDUCATION

Eicher, Hawkridge, McAnany, Mariet and Orivel (1982) identify and discuss the problems involved in measuring effectiveness of educational systems. Many of their comments apply equally to conventional and to distance education systems, and need not be repeated here. They do identify performance indicators, however, and some of these are listed in Table 9.

TABLE 9

Performance Indicators for Distance Education Projects

Indicator	Comments
System enrolment Full-time students Part-time students	Normally presented by year of admission and by total enrolment in a given year; sometimes as a a grand total of all students ever enrolled.
System drop-out Full-time students Part-time students	Drop-outs can be difficult to identify in LDC distance education systems in which dropping-in again is usually simple and encouraged.
System throughput Full-time students Part-time students	Where distance education deals with adults, not stable cohorts of children, throughput can be difficult to calculate accurately.
Number of courses Under development Being presented	Courses differ in size, so this is mainly used as a measure of progress by a particular institution, not for comparative purposes.
Number of TV broadcasts Produced Broadcast	Broadcasts differ in length and complexity, so again this is used as a measure within rather than between institutions.
Number of radio b'casts Produced Broadcast	As for TV broadcasts.
Number of student passes By course or credit By degree or diploma	The main indicator for many projects, yet notoriously unreliable for comparative purposes because standards vary widely.
Numbers of staff trained	Important in many projects where technical assistance is being provided to upgrade LDC staff